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AUTHOR O'Neil, James M.; And Others
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ABSTRACT

Concern on how interest inventories are being used in career counseling and other preventive interventions has resulted in heightened sensitivity to the impact of interest inventories and the emergence of the concept exploration validity. Various aspects of exploration validity were assessed using three different interest inventories. The immediate reactions of college students (N=64) who completed the old and revised Self-Directed Search (SDS) and the Strong Campbell Interest Inventory (SCII) were assessed as well as their attitudes and behaviors four weeks after counselor or self-interpretation. Treatment, sex, and time differences were assessed for all groups. Women were found to have greater clarity about and certainty of ideas about career planning than men, regardless of the treatment or time. The SCII had greater clarity of directions than the old SDS immediately after testing. The revised SDS group was found to have greater clarity and certainty about their career planning than SCII immediately after testing. The revised SDS indicated significantly less decrease in clarity and certainty about career planning than the old SDS four weeks after interpretation. These differences suggest that a test user's sex and the treatment assigned may produce differential effects and outcomes. (Author/NRB)

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Treatment Effects of the Strong Campbell Interest Inventory and the Self Directed Search on Men and Women

James M. O'Neil

Jan Stanley Muchow

Charles Barké

The University of Kansas

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Treatment Effects of the Strong Campbell Interest Inventory and the Self Directed Search on Men and Women

Interest inventories received much attention in the 1970's and still pose challenging questions for counseling psychologists. Most of the attention emerged from scrutiny of interest inventories for sex bias. Also addressed were the issues of their value and equity in career counseling and other preventive interventions. Although much attention has been given to interest inventories, their impact, use, and equity are still not well known and many questions remain unresolved.

There were numerous events in the last decade that stimulated concerns about the use of interest inventories. The legal imperatives of Title IX of the Education Amendment (1972) were primary stimuli for examining interest inventories. This law forbid the use of any career or educational material that might discriminate against either sex. Therefore, interest measurement and inventories became primary areas of evaluation and assessment. Most authors agreed that sex bias in interest inventories was indeed operative, a debatable topic, and an impeding factor to the evolution of sex fair career assistance (Birk, 1975; Cole & Hanson, 1975; Diamond, 1976; Harmon, 1973, 1975; Holland, 1974; Prediger & Hanson, 1974; Tanney, 1975; Tittle, 1974). Concurrent with these realizations, were four other important events. First, the American Measurement Evaluation in Guidance (AMEG, 1973; 1977) and the National Institute of Education (NIE; Diamond, 1975) published reports, guidelines, and recommendations for the use of interest inventories. Most

notable was Diamond's (1975) edited text "Issues of Sex Bias and Sex Fairness In Career Interest Measurement" which helped focus both the theoretical and research issues on the use and construction of interest inventories. Second, a debate between John Holland and Dale Prediger ensued on the relative merits of raw versus normed scored interest inventories (Hanson, Noeth, & Prediger, 1977; Holland, 1976a, 1976b; Holland, Gottfredson, & Gottfredson, 1975; Prediger & Cole, 1975a, 1975b; Prediger & Hanson, 1976) and their sex bias or restrictiveness. Third, building on the earlier work sponsored by the National Institute of Education (Diamond, 1975), a second major publication addressed the sex bias in interest inventory concern (Tittle & Zytowski, 1978). This publication entitled "Sex-Fair Interest Measurement: Research and Implications" reported recent research on sex bias and continued to redefine future research needs. A fourth event was the emergence of the concept "exploration validity" (Tittle, 1978; Zytowski, 1978) in contrast to the traditional predictive validity.

Exploration validity differs from predictive validity by documenting how interest inventories impact users. Tittle (1978) suggests that "exploration validity is the new paradigm for the measurement of career interests rather than prediction" (p. 126) and Zytowski (1978) notes that "predictive validity is no longer the ultimate form of validity for an interest inventory" (p. 132). Specifically, exploration validity can assess (a) the number and diversity of careers suggested by inventory results, (b) client satisfaction and interpretation of the results, (c) the way clients use the results in terms of specific attitudes or behaviors, (d) clarity of users' interests and their

choice of non-traditional careers. There has been some research assessing aspects of exploration validity (Atanasoff & Slaney, 1980; Cooper, 1976; Holland, Takai, Gottfredson, & Hanau, 1978; Krivatsy & Magoon, 1976; O'Neil, Price, & Tracey, 1979; Prediger & Noeth, 1979; Slaney, 1978; Talbot & Birk, 1979; Zytowski, 1977) but few of these authors have explained their results in this way.

Tittle (1978) indicates that research is needed to further refine criteria for exploration validity and to explore research methodology for this kind of validity. Additionally, it is not known whether the recent revisions of well known interest inventories have been positive and make differences in terms of users' reactions or greater sex equity. This research on interest inventories is also mandated by the increased demand by the public to know the utility, effects, and limitations of tests. The use of interest inventories has become a greater social and legal issue (Fitzgerald & Fisher, 1975; Schiffer, 1978) and Turnbull (Note 1) cogently outlines a perceived national attack on psychological testing. The proposed Testing Reform Act (H.R. 6776) is also evidence of the public's concern about how tests are used and how they impact people's lives.

Research on interest inventories has relevance for counseling practioneers. Clients' reactions to interest tests are important in determining their effective use in career counseling and integrating them in the context of an intimate counseling relationship. Research questions that would allow practioneers to know more about the impact and utility of interest inventories include: Do different inventories produce different outcomes? Are there

different effects when using a self interpreted versus counselor interpreted instrument? Are there sex differences in the impact of interest inventories and does this impact change over time? Research focused on these and other questions would increase our knowledge about interest inventories' usefulness, effect, and sex-fairness as well as a better understanding of exploration validity.

The purpose of this research was to assess college students' reactions to three interest inventories. Reaction and effects were assessed immediately following testing and four weeks after self or counselor interpretation of either the old Self Directed Search (SDS, Holland, 1970), the revised Self Directed Search (SDS, Holland, 1977) or the Strong-Campbell Interest Inventory (SCII, Campbell, 1974). It was hypothesized that the reactions and impact of these three inventories would show no differences in the a) effects of self interpreted versus counselor interpretated results (treatment effects), b) effects on men and women's reactions, attitudes, and behaviors (sex differences), c) effects of time on the results (time differences).

For purposes of this research, the definition of exploration validity was divided into two areas of assessment. One area was students' immediate reactions to the interest inventories on the following variables: response to testing, career stimulation, clarity of test directions, and certainty about career planning. The second area refers to their attitudes and behaviors four weeks after test interpretation on the following variables: satisfaction with career planning, clarity and certainty of ideas about career planning, time spent thinking about career planning, and the number of careers currently being considered.

Method

Subjects

A random sample of freshman and sophomore men and women (N=695) were invited to participate in a career interest testing workshop. Of the students who responded (N=126), 85 actually participated. Attrition throughout the data collection period resulted in a usable sample size of 67 (men, n=32; women, n=35). Random assignment by sex to one of three interest inventories resulted in final treatment group sizes of: 1) SCII, N=22 (men, n=12; women, n=10); 2) Old SDS, N=20 (men, n=8; women, n=12); 3) Revised SDS, N=25 (men, n=12; women, n=13). These subjects shared the following characteristics: 1) desired to take a career interest inventory, 2) lived in a university residence hall, 3) were members of either the freshman or sophomore class. Their mean age was 21 with a range of 17 to 27 years.

Experimental Treatments

1970 Edition of SDS. Students in this treatment group took the first edition of SDS based on Holland's (1973) theory of careers. The SDS is a self-administering, self-scoring, and self-interpreting instrument used in individual counseling, career exploration groups, and as a self-directed learning experience.

1977 Revised Edition of the SDS. Students in this group took the 1977 edition of the SDS. The revised SDS resembles the 1970 edition but the new form contains over a hundred changes. Holland (1979) reports that the major

revisions include simplified scoring procedures, an updated Occupations section, and the addition of fifty job titles to the Occupations Finder. The 1970 and revised SDS "have similar reliability and predictive validity, but the new form is more easily self-administered and takes 5 to 10 minutes less time to complete" (Holland, 1979, p. 7).

SCII. Students in this treatment group took the Strong Campbell Interest Inventory (SCII), which is the merged male and female forms of the Strong Vocational Interest Blank (SVIB) developed by Campbell (1974).

Questionnaire Instruments

Career Interest Inventory Reaction Questionnaire (CIIRQ)

This questionnaire (O'Neil, Price, & Tracey, 1979) was used to obtain subjects' immediate evaluation of the testing experience. It was a modified version of Zener and Schnuelle's (1976) student evaluation form. Subjects were asked to respond on a 5-point Likert scale (strongly agree to strongly disagree) to 15 questions about the testing experience. These 15 questions were factor analyzed and produced four areas related to the testing experience including: (a) Factor 1, Career Stimulation (item content was concerned with how the test stimulated subjects to think about career planning); (b) Factor 2, Response to Testing (item content was concerned with subjects' personal reactions to the inventories); (c) Factor 3, Clarity of Directions (item content was concerned with whether the tests had clear directions); (d) Factor 4, Certainty About Career Planning (item content was concerned with how certain the subjects felt about the career planning process). Hoyt's

(1941) reliability coefficients on each factor were unusually high, ranging from .93 to .97.

Career Behavior and Attitude Checklist Questionnaire (CBACQ)

This questionnaire (O'Neil, Price, & Tracey, 1979) assessed student attitudes and behaviors following testing and interpretation. The questionnaire consisted of items similar to those used by Zener and Schnuelle (1976) and Krivatsy and Magoon (1976). The 17 item questionnaire was factor analyzed and yielded three factors related to career attitudes and behaviors. These included: (a) Factor 1, Satisfaction with the Career Planning Process (item content was concerned with subjects' satisfaction with the career planning process and future needs); (b) Factor 2, Clarity and Certainty of Ideas about Career Planning (item content was concerned subjects' clarity and certainty about their career choices); (c) Factor 3, Time Spent Thinking about Career Planning (item content was concerned with the amount of time that subjects spent thinking about their career planning). Hoyt's (1941) reliability coeficients for the CBACQ ranged from .85 to .96.

Demographic Questionnaire (DQ)

This questionnaire was used to obtain demographic information on subjects' address, careers being considered and present career/major choices. The free response items were similar to a questionnaire used by Zener and Schnuelle (1976).

Procedures

The testing workshops were implemented by five paraprofessionals who were master's level counseling students. The workshop began with a statement

of goals and a brief explanation of the appropriate use of interest inventories. This explanation included: a) information that inventories neither provide ready answers nor assess abilities but do assess people's interests, b) encouragement to use their results in career exploration, c) information about the effects of past experience and sex bias on user's results. After this introduction, the inventories and dependent measures were administered in the following order: DQ, assigned interest inventory, CIIRQ, DQ, CBACQ[1].

Those subjects taking the SDS self-interpreted their results and returned the DQ and CBACQ four weeks later through the mail[2]. Subjects completing the SCII were informed that their results would be interpreted in small groups on a specified evening. The interpretation sessions for the SCII groups were conducted in three residence halls by a Ph.D. level counseling psychologist. The interpretation session included: a) information about interest tests that was presented at the beginning of the workshop (purposes of tests and their limitations), b) review of the SCII purposes and the different sections of the inventory, c) how to understand the scores. This information was presented using ten color slides and a brief verbal presentation.

After the presentation and group interpretation, each subject was given individual attention by reviewing their results and answering any questions. Additionally, subjects were given written descriptions of Holland's (1973)

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[1]The Paragraph Completion Measure (Hunt, Butler, Noy, & Rosser, 1977) was also administered for use in another study.

[2]After completion of the study, both SDS groups also received a group interpretation of their results.

six personality types. Subjects were then instructed to identify their three highest Holland types from the general themes of SCII. On the written description of the Holland types, the subject underlined those characteristics that fit how they saw themselves. The underlined characteristics and the other Holland themes were then discussed in the context of each person's career and personality development. Four weeks after the group interpretation, subjects were sent the DQ and CBACQ and requested to return them through the mail.

Design and Analysis

The research design for this study was a 2x3 ANOVA on the variables of the CIIRQ and a 2x3x2 mixed factorial ANOVA with repeated measures on the variables of the CBACQ. One other dependent variable (number of careers being considered) from the DQ was also analyzed using the 2x3x3 repeated measures procedures. This dependent variable was assessed before testing, immediately after testing, and 4 weeks after interpretation. The four variables from the CIIRQ (response to testing, career stimulation, clarity of directions, certainty about career planning) were analyzed for sex and treatment differences. The three variables from the CBACQ (satisfaction with career planning, clarity and certainty about career planning, time spent thinking about career planning) and the one item from the DQ (the number of careers being considered) were analyzed for sex, treatment, and time differences.

Results

The means and standard deviations for all dependent measures for male and female treatment groups are presented in Table 1.

Insert Table 1 about here

A table of F values for the two-way ANOVA's on the factors of the Career Interest Inventory Reaction Questionnaire and the 2x2x3 ANOVA with repeated measures on the factors of the Career Behavior and Attitude Checklist Questionnaire are found in Table 2.

Insert Table 2 about here

The results of students' immediate reactions to testing indicate significant sex difference on the factors: response to testing $F(1,64) = 6.40$, $p \leq .01$ and certainty about career planning, $F(1,64) = 5.87$, $p \leq .01$. Women's responses to testing were significantly more positive than men, and women also reported significantly more certainty about career planning than men immediately after completing the interest inventories. All other sex differences were nonsignificant ($p > .05$). Additionally, a significant treatment difference on the factor clarity of directions was found $F(1,64) = 6.25$, $p < .003$. Post hoc Scheffé comparisons indicated that the subjects reported the SCII directions were significantly more clear than the old SDS. All other post hoc comparisons were nonsignificant.

The results of the repeated measures on career attitudes and behaviors four weeks after interpretation indicate significant sex difference on the

factor clarity and certainty of ideas about career planning, $F(1,64) = 5.51$, $p < .02$; a significant time effect on the factor time spent thinking about career planning, $F(1,64) = 4.08$, $p < .04$; a significant treatment x time interaction on the factor clarity and certainty of ideas about career planning, $F(1,64) = 3.91$, $p < .02$. There were no significant treatment effects for the variables satisfaction with career planning or number of careers being considered.

The results indicate that across treatment and time women had significantly greater clarity and certainty of ideas about career planning than men. A significant main effect for time indicated a decrease in time spent thinking about career planning regardless of sex or treatment group. The significant interaction between treatment and time effects is depicted in Figure 1. This

Insert Figure 1 about here

figure indicates that both SDS groups decreased in clarity and certainty about career planning across time while the SCII group increased. However, Scheffé procedures indicated that there were no significant within group changes. Additional comparisons showed that the sources of interaction effects were differences between the a) revised SDS group and the SCII immediately after testing and b) revised SDS group and the 1970 SDS four weeks after self-interpretation ($p < .05$). Additionally, the slopes of both SDS groups differed from that of the SCII group. These results indicate that immediately after interest testing, subjects taking the new SDS reported greater clarity and certainty about their career planning than those who completed the SCII ($p < .05$). Also, four weeks after self-interpretation the revised SDS mean

was significantly higher than the old SDS group, indicating a larger decrease in the latter on clarity and certainty about career planning ($p < .05$). However, the SCII group was no longer different from either SDS groups four weeks after interpretation on the factor clarity and certainty about career planning.

Discussion

The results provide information on the exploration validity of interest inventories immediately after testing and four weeks after interpretation. Two sex differences on immediate reactions to testing were observed. Women were more positive to testing and had greater certainty about their career planning than men immediately after testing. Also, immediately after testing, a treatment difference was observed between the SCII and the 1970 SDS on the variable clarity of directions. The SCII had greater clarity of directions than the 1970 SDS immediately after testing, but no significant differences were observed between the 1970 and revised SDS.

Four weeks after self- or counselor-interpretation of the inventories three other significant results were observed. A sex difference on the factor clarity and certainty of ideas about career planning was found. Women had greater clarity and certainty about career planning than men regardless of the treatment or time. There was also a treatment x time interaction for the factor clarity and certainty of ideas about career planning. The revised SDS group was found to have greater clarity and certainty

about their career planning than SCII immediately after testing. Additionally, the revised SDS indicated significantly less decrease in clarity and certainty about career planning than the old SDS four weeks after interpretation. Finally, the combined testing groups decreased the amount of time spent thinking about career planning from immediately after testing to four weeks after interpretation.

The significant sex and treatment differences in exploration validity observed in this research contribute to past research on the impact of interest inventories (Atanasoff & Slaney, 1980; Cooper, 1976; Holland et al., 1978; Krivatsy & Magoon, 1976; O'Neil et al., 1979; Prediger & Noeth, 1979; Slaney, 1978; Talbot & Birk, 1979; Zytowski, 1977). These differences suggest that a test user's sex and the treatment assigned may produce differential effects and outcomes. The sex differences indicating that women have greater certainty and clarity about career planning than men after testing and interpretation are significant but open to speculation. What contributes to women having greater clarity and certainty about their career planning than men? Did the females integrate their results better than men or did the women defer more to the test results as external validation of themselves? Only future research can determine the reasons why women felt more certain and clear about their career planning after testing and interpretation.

The sex and treatment differences observed do not necessarily imply sex bias. To adequately measure sex bias in interest inventories research needs to a) more specifically assess users' reactions to the inventories in terms of sex fairness, b) separate sex bias inherent in the inventory from the sex

stereotypic thinking and responding of the test user. However, the significant sex and treatment differences do imply that both a person's sex and the testing treatment assigned may produce differential outcomes. Consequently, counselors are encouraged to fully discuss client's feelings and reactions to interest inventories immediately after testing and interpretation. The discussion of client's reactions to interest tests could safeguard sex and treatment differences leading to sex bias. Such discussion might include bias in the inventory per se as well as socialized bias of either the counselor or client.

The interaction between treatment and time for clarity and certainty about career planning suggests that the timing of interpretation may have a notable impact on test takers. The SDS as a self-interpreted instrument providing immediate feedback, yields high clarity and certainty, an effect which fades slightly over time. Conversely, a delayed, counselor-interpreted instrument like the SCII yields lower clarity and certainty initially, but strengthens over time. These results are not unexpected and demonstrate that the self-interpretive SDS results do provide users with more clarity and certainty about their career planning, whereas the delayed, counselor-interpreted SCII does the same after the results are interpreted. Additionally, the effect of the Revised SDS appears to fade less quickly than that of the 1970 form resulting in greater clarity and certainty four weeks after interpretation. These results suggest that Holland's revised SDS is an improved version in terms of clarity and certainty of career planning four weeks after self interpretation.

The significant time effect indicated that the combined testing groups decreased significantly the amount of time spent thinking about career planning four weeks after interpretation. This result does raise the question of how lasting and influential are the results of interest inventories in people's lives. Are they just "quick fixes" for career indecision or do they really promote long-term career planning, exploration, and decision making? Also, what might cause a significant decrease in thinking about career planning for students four weeks after test interpretation? It could result in confirmation, positive or premature closure, and even disappointment, despair, and heightened career anxiety. Counselors may need to assess and discuss how the administration and interpretation of interest inventories affect clients over time. This assessment will provide information on both the expectancies and results of the testing experience, particularly as it relates to effective career counseling. Further experimental research is needed to better understand whether interest inventories really make a difference in helping people with career decision making.

One possibility for generating this research is to articulate the functions of interest inventories. Holland (1975) and Gottfredson and Holland (1978) indicate that interest inventories can: a) reassure people who are unsure, b) provide structures to think about careers, c) serve as a diagnostic tool, d) promote a wider range of career alternatives, and e) help focus career exploration. These different functions may suggest different treatment interventions, with differential goals and outcomes, at different points in the career counseling process. Future research is needed to understand the

differential effects of testing interventions, on different clients, with different career counseling goals and problems. This research should help guide them in a more precise diagnosis of what tests to use with clients with particular career problems. Additionally, future research should continue to identify criteria for exploration validity (Tittle, 1978) and potential sex bias in interest inventories.

Reference Note

Turnbull, W. APA and the war on testing. (Editorial) APA Monitor, March, 1980, Vol. II, No. 3, p. 2.

References

AMEG Commission on Sex Bias in Measurement. "Report on sex bias in interest measurement," in Measurement and Evaluation in Guidance, 1973, 6, 171-177.

AMEG Commission on Sex Bias in Measurement. "A case history of change: A review of responses to the challenge of sex bias in career interest inventories," in Measurement and Evaluation in Guidance, 1977, 10, 148-161.

Atanasoff, G.E. & Slaney, R.B. Three appr[illegible] to counselor-free career exploration among college women. Jo[illegible]f Counseling Psychology, 1980, 27, 332-339.

Birk, J.M. Reducing sex bias - Factors [illegible] the client's view of the use of career interest inventories. I[illegible]. E. Diamond (Ed.), Issues of sex bias and sex fairness in career interest measurement. Washington, D.C.: U.S. Government Printing Office, 1975.

Campbell, D.P. Manual for the SVIB-SCII (Form T325). Stanford: Stanford University Press, 1974.

Cole, N.S. & Hanson, G.R. Impact of interest inventories on career choice. In E. E. Diamond (Ed.), Issues of sex bias and sex fairness in career interest measurement. Washington, D.C.: U.S. Government Printing Office, 1975.

Cooper, J.F. Comparative impact of the SCII and the vocational card sort on career salience and career exploration of women. Journal of Counseling Psychology, 1976, 23, 348-352.

Diamond, E.E. (Ed.) Issues of sex bias and sex fairness in career interest measurement. Washington, D.C.: U.S. Government Printing Office, 1975.

Diamond, E.E. Minimizing sex bias in testing. Measurement and Evaluation in Guidance, 1976, 9, 28-34.

Fitzgerald, L.E. & Fisher, B.J. The legal implications of sex bias in interest inventories. In E. E. Diamond (Ed.), Sex bias and sex fairness in career interest measurement. Washington, D.C.: U. S. Government Printing Office, 1975.

Gottfredson, G.D. & Holland, J.L. Toward beneficial resolution of the interest inventory controversy. In C. K. Tittle and D. G. Zytowski (Eds.), Sex fair interest measurement: Research and implications. Washington, D.C.: U.S. Government Printing Office, 1978.

Guidelines for the Assessment of Sex Bias and Sex Fairness in Career Interest Inventories. Measurement and Evaluation in Guidance, 1975, 8, 7-11.

Hanson, G.R., Noeth, R.J., & Prediger, D.J. Validity of diverse procedures for reporting interest scores: An analysis of longitudinal data. Journal of Counseling Psychology, 1977, 24, 487-493.

Harmon, L.W. Sexual bias in interest measurement. Measurement and Evaluation in Guidance, 1973, 5, 496-501.

Harmon, L.W. Technical aspects: Problems of scale development, norms, item differences by sex, and the rate of change in occupational group characteristics - I. In E. E. Diamond (Ed.), Issues of sex bias and sex fairness in career interest measurement. Washington, D.C.: U.S. Government Printing Office, 1975.

Holland, J.L. The Self-Directed Search: A guide to educational and vocational planning. Palo Alto, CA.: Consulting Psychologist Press, 1970.

Holland, J.L. Making vocational choices: A theory of careers. Englewood Cliffs, New Jersey: Prentice-Hall, 1973.

Holland, J.L. Some guidelines for reducing systematic biases in the delivery of vocational services. Measurement and Evaluation in Guidance, 1974, 6, 210-218.

Holland, J.L. The use and evaluation of interest inventories and simulation. In E. E. Diamond (Ed.), Issues of sex bias and sex fairness in career interest measurement. Washington, D.C.: U.S. Government Printing Office, 1975.

Holland, J.L. The virtues of the SDS and its associated typology: A second response to Prediger and Hanson. Journal of Vocational Behavior, 1976, 8, 349-358. (a)

Holland, J.L. Consistency and raw scores survive another test: A last response to Prediger and his colleagues. Measurement and Evaluation in Guidance, 1976, 9, 132-135. (b)

Holland, J.L. The Self-Directed Search: A guide to educational and vocational planning (Rev. ed.). Palo Alto, CA.: Consulting Psychologist Press, 1977.

Holland, J.L. Professional manual for the Self-Directed Search. Palo Alto, CA.: Consulting Psychologist Press, 1979.

Holland, J.L., Gottfredson, G.D., & Gottfredson, L.S. Read our reports and examine the data, a response to Prediger and Cole. Journal of Vocational Behavior, 1975, 7, 253-259.

Holland, J.L., Takai, R., Gottfredson, G.D., & Hanau, C. A multivariate analysis of the effects of the Self-Directed Search on high school girls. Journal of Counseling Psychology, 1978, 25, 384-389.

Hoyt, C.J. Test reliability by analysis of variance. Psychometrika, 1941, b, 153-160.

Hunt, D.E., Butler, L.F., Noy, J.E., & Rosser, M.E. Assessing conceptual level by the Paragraph Completion Method. Unpublished manuscript, Ontario Institute for Studies in Education, 1979.

Krivatsy, S.E. & Magoon, T.M. Differential effects of three vocational counseling treatments. Journal of Counseling Psychology, 1976, 23, 112-118.

O'Neil, J.M., Price, G.E., & Tracey, T. The stimulus value, treatment effects, and sex differences when completing the Self-Directed Search and Strong-Campbell Interest Inventory. Journal of Counseling Psychology, 1979, 26, 45-50.

Prediger, D.J. & Hanson, G.R. The distinction between sex restrictiveness and sex bias in interest inventories. Measurement and Evaluation in Guidance, 1974, 7, 96-104.

Prediger, D.J. & Cole, N.S. Sex-role socialization and employment realities: Implications for vocational interest measures. Journal of Vocational Behavior, 1975, 7, 239-251. (a)

Prediger, D.J. & Cole, N.S. It is time to face some issues: A response to Holland, Gottfredson, and Gottfredson. Journal of Vocational Behavior, 1975, 7, 261-263. (b)

Prediger, D.J. & Hanson, G.R. A theory of career encounters sex: Reply to Holland (1976). Journal of Vocational Behavior, 1976, 8, 359-366.

Prediger, D.J. & Noeth, R.J. Effectiveness of a brief counseling interventions in stimulating vocational exploration. Journal of Vocational Behavior, 1979, 14, 352-368.

Schiffer, L.J. Legal issues regarding sex bias in the selection and use of career interest inventories. In C. K. Tittle and D. G. Zytowski (Eds.), Sex fair interest measurement: Research and implications. Washington, D.C.: U. S. Printing Office, 1978.

Slaney, R.B. Expressed and inventoried vocational interests: A comparison of instruments. Journal of Counseling Psychology, 1978, 25, 520-529.

Talbot, D.B. & Birk, J.M. Does the Vocational Exploration and Insight Kit equal the sum of its parts?: A comparison study. Journal of Counseling Psychology, 1979, 26, 359-362.

Tanney, M.F. Face validity of interest measures: Sex role stereotyping. In E. E. Diamond (Ed.), Issues of sex bias and sex fairness in career interest measurement. Washington, D.C.: U.S. Government Printing Office, 1975.

Tittle, C.K. Implications of recent developments for research in career interest measurement. In C. K. Tittle and D. G. Zytowski (Eds.), Sex-fair interest measurement: Research and implications. Washington, D.C.: U.S. Government Printing Office, 1978.

Tittle, C.K. Sex bias in educational measurement: Fact or fiction? Measurement and Evaluation in Guidance, 1974, 6, 219-226.

Tittle, C.K. & Zytowski, D.G. (Eds.) Sex-fair interest measurement: Research and implications. Washington, D.C.: U.S. Government Printing Office, 1978.

Title IX, Education Amendment of 1972, Public Law 92-318, June 23, 1972.

Zener, T.B. & Schnuelle, L. Effect of the Self-Directed Search on high school students. Journal of Counseling Psychology, 1976, 23, 353-359.

Zytowski, D.G. The effects of being interest-inventoried. Journal of Vocational Behavior, 1977, 11, 153-157.

Zytowski, D. Implication for counselors of research on sex-fairness in interest measurement. In C. K. Tittle and D. G. Zytowski (Eds.), Sex-fair interest measurement: Research and implications. Washington, D.C.: U.S. Printing Office, 1978.

Table 1

Means and Standard Deviations for Dependent Variables

Dependent Variables	FEMALES						MALES					
	SDS		Revised SDS		SCII		SDS		Revised SDS		SCII	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
CIIRQ												
Response to Testing	18.25	3.39	19.31	3.30	18.60	2.99	16.38	1.92	18.25	2.60	16.25	2.00
Career Stimulation	14.33	2.84	15.92	2.84	14.80	3.26	15.00	2.93	14.00	2.04	12.50	2.94
Clarity of Directions	10.58	2.23	12.31	2.02	13.20	1.40	11.88	1.12	12.08	1.50	13.17	1.80
Certainty About Career Planning	9.58	2.47	10.38	1.71	10.30	1.49	8.62	1.41	9.67	2.31	8.50	1.73
CBACQ												
Satisfaction with Career Planning												
Pre	20.18	6.01	20.46	5.38	19.00	4.93	19.75	5.97	17.75	5.28	18.36	5.00
Post	19.91	5.45	20.23	4.28	19.12	5.00	20.62	5.48	18.17	4.43	16.00	5.92
Clarity and Certainty of Ideas About Career Planning												
Pre	20.36	4.34	22.31	3.30	20.38	3.54	19.75	3.81	20.50	1.57	17.09	3.70
Post	18.45	3.11	21.00	2.92	22.88	3.14	19.12	4.32	20.25	3.11	17.00	4.96
Time Spent Thinking About Career Planning												
Pre	18.55	3.93	16.69	4.31	17.12	3.98	17.75	3.54	16.08	2.94	16.45	2.94
Post	16.82	4.02	16.77	3.70	17.88	3.91	16.88	2.70	14.58	2.27	14.82	2.96
DQ												
Number of Careers Being Considered												
Pre	4.50	1.78	6.00	2.85	4.30	2.49	4.75	1.66	4.75	3.19	2.75	1.54
Post (1)	3.83	1.94	5.07	1.07	5.10	2.96	5.25	1.83	5.25	3.27	2.66	1.82
Post (2)	3.83	2.03	4.57	1.98	4.50	2.63	4.87	1.80	4.08	3.02	7.33	17.06

Table 2

Summary Table of F Values

Dependent Variables	Sex (A)		Treatment (B)		A X B		Trials (C)		A X C		B X C		A X B X C	
	F	p	F	p	F	p	F	p	F	p	F	p	F	p
CIIRQ														
Response to Testing	6.4*	.014	1.95	.151	.32	.729								
Career Stimulation	2.9	.093	1.35	.266	1.67	.196								
Clarity of Directions	.62	.434	6.25*	.003	1.12	.331								
Certainty About Career Planning	5.87*	.018	1.33	.271	.49	.616								
CBACQ														
Satisfaction with Career Planning	1.32	.255	.85	.434	.41	.662	.15	.699	.03	.853	.48	.623	.79	.459
Clarity & Certainty of Ideas About Career Planning	5.51*	.022	1.92	.156	2.54	.088	.58	.451	.01	.911	3.91*	.026	2.75	.072
Time Spent Thinking About Career Planning	2.30	1.34	1.19	.313	.28	.755	4.08*	.048	1.64	.206	.36	.699	1.34	.270
DQ														
Number of Careers Being Considered	0.00	.99	.19	.829	.32	.725	.13	.877	.84	.433	1.05	.384	.78	.540

*p. < .05

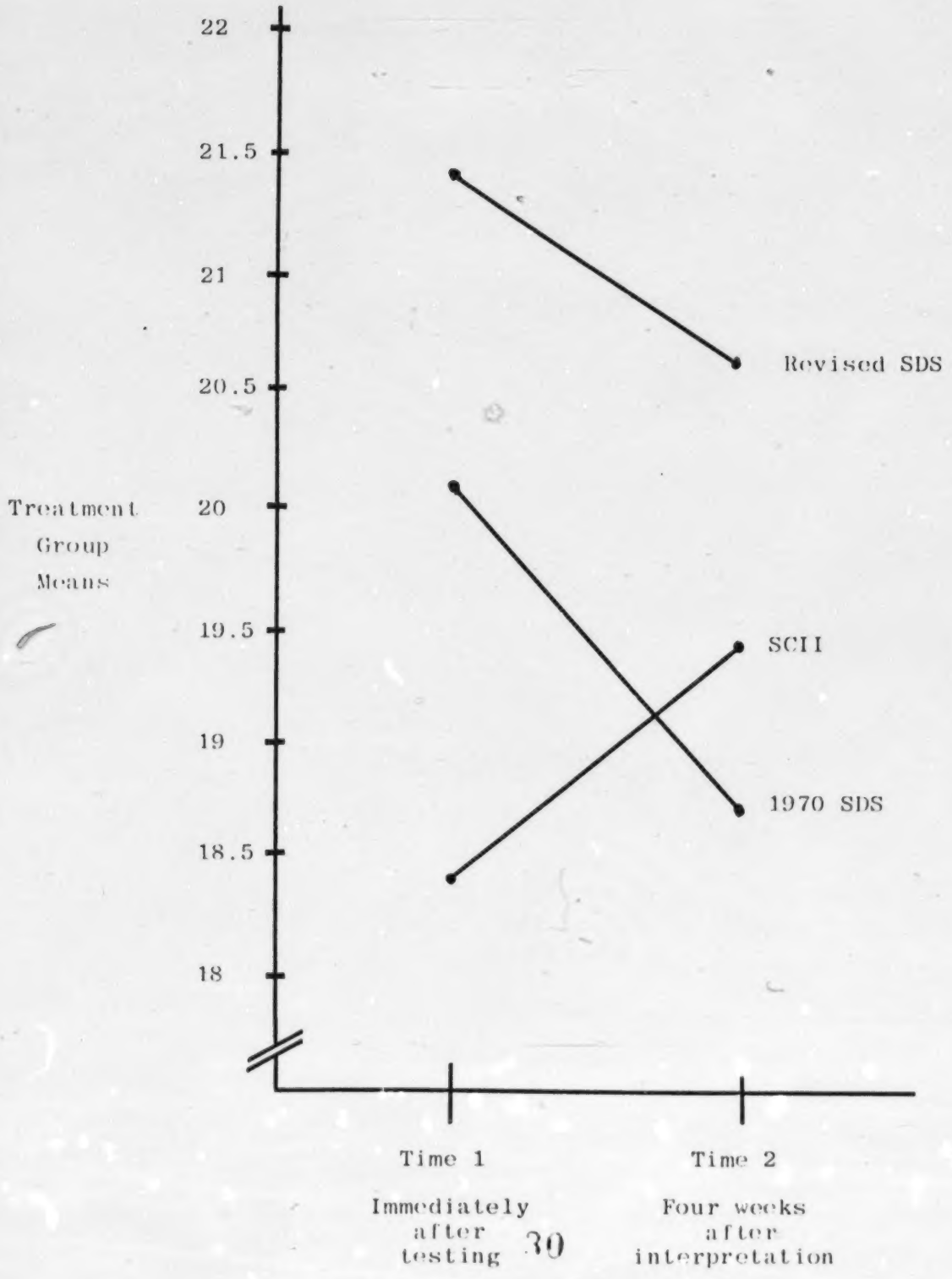

Figure 1 : Treatment x time Interaction for the Factor Clarity and Certainty of Ideas about Career Planning